

FILE 'HOME' ENTERED AT 09:04:13 ON 13 JUN 2003

=> file agricola biosis caplus caba

=> s (chloroplast or plastid) and (downstream box)  
L1 4 (CHLOROPLAST OR PLASTID) AND (DOWNSTREAM BOX)

=> duplicate remove l1  
L2 3 DUPLICATE REMOVE L1 (1 DUPLICATE REMOVED)

=> d ti 1-3

L2 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2003 ACS  
TI Downstream box variants for use in increasing the efficiency of translation of foreign genes in plastids

L2 ANSWER 2 OF 3 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1  
TI Complementarity of the 16S rRNA penultimate stem with sequences downstream of the AUG destabilizes the plastid mRNAs.

L2 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2003 ACS  
TI Translation control elements for high-level protein expression in the plastids of higher plants and methods of use thereof

=> d bib abs 1-3

L2 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2003 ACS  
AN 2001:229028 CAPLUS  
DN 134:248007  
TI Downstream box variants for use in increasing the efficiency of translation of foreign genes in plastids  
IN Chaudhuri, Sumita  
PA Calgene LLC, USA  
SO PCT Int. Appl., 52 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001021782	A2	20010329	WO 2000-US26052	20000922
	WO 2001021782	A3	20020103		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW			
	RW:	AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE			
	EP 1214434	A2	20020619	EP 2000-963724	20000922
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL			
PRAI	US 1999-156071P	P	19990924		
	WO 2000-US26052	W	20000922		

AB Elements that can be used to increase the efficiency of translation of foreign genes on plastid ribosomes are described. Specifically, variants of the downstream box (DB) that lies 3' of the Shine-Dalgarno sequence and that is involved in interaction with the 16S rRNA in the ribosome are described. A series of variants of known downstream boxes were generated and tested for their effects on the level of expression of a bacterial gene (the .beta.-1,4-endoglucanase gene of Acidothermus E1) from a bacteriophage T7 promoter in tobacco plastids. A clear effect of the DB on the efficiency of translation was obsd.

L2 ANSWER 2 OF 3 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1  
AN 2001:146254 BIOSIS  
DN PREV200100146254  
TI Complementarity of the 16S rRNA penultimate stem with sequences downstream of the AUG destabilizes the plastid mRNAs.  
AU Kuroda, Hiroshi; Maliga, Pal (1)  
CS (1) Waksman Institute, Rutgers-State University of New Jersey, 190 Frelinghuysen Road, Piscataway, NJ, 08854-8020: maliga@waksman.rutgers.edu USA  
SO Nucleic Acids Research, (February 15, 2001) Vol. 29, No. 4, pp. 970-975. print.  
ISSN: 0305-1048.

DT Article  
LA English  
SL English  
AB Escherichia coli mRNA translation is facilitated by sequences upstream and downstream of the initiation codon, called Shine-Dalgarno (SD) and downstream box (DB) sequences, respectively. In E.coli enhancing the complementarity between the DB sequences and the 16S rRNA penultimate stem resulted in increased protein accumulation without a

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significant affect on mRNA stability. The objective of this study was to test whether enhancing the complementarity of **plastid** mRNAs downstream of the AUG (downstream sequence or DS) with the 16S rRNA penultimate stem (anti-DS or ADS region) enhances protein accumulation. The test system was the tobacco **plastid** rRNA operon promoter fused with the E.coli phage T7 gene 10 (T7g10) 5'-untranslated region (5'-UTR) and DB region. Translation efficiency was tested by measuring neomycin phosphotransferase (NPTII) accumulation in tobacco chloroplasts. We report here that the phage T7g10 5'-UTR and DB region promotes accumulation of NPTII up to approx16% of total soluble leaf protein (TSP). Enhanced mRNA stability and an improved NPTII yield (approx23% of TSP) was obtained from a construct in which the T7g10 5'-UTR was linked with the NPTII coding region via a NheI site. However, replacing the T7g10 DB region with the **plastid** DS sequence reduced NPTII and mRNA levels to 0.16 and 28%, respectively. Reduced NPTII accumulation is in part due to accelerated mRNA turnover.

L2 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2003 ACS

AN 2000:116842 CAPLUS

DN 132:176595

TI Translation control elements for high-level protein expression in the plastids of higher plants and methods of use thereof

IN Maliga, Pal; Kuroda, Hiroshi; Khan, Muhammad Sarwar

PA Rutgers, the State University of New Jersey, USA

SO PCT Int. Appl., 164 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000007431	A1	20000217	WO 1999-US17806	19990803
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2339641	AA	20000217	CA 1999-2339641	19990803
AU 9955490	A1	20000228	AU 1999-55490	19990803
EP 1102528	A1	20010530	EP 1999-942025	19990803
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002521072	T2	20020716	JP 2000-563128	19990803
PRAI US 1998-95163P	P	19980803		
US 1998-95167P	P	19980803		
US 1998-112257P	P	19981215		
US 1999-131611P	P	19990429		
US 1999-138764P	P	19990611		
WO 1999-US17806	W	19990803		

AB DNA constructs contg. translational control elements (TCE) are provided. This invention is based on the discovery that sequences downstream from **plastid** gene promoters enhance accumulation of proteins from the **rbcl** leader. The **clpP**, **psbB**, and **psbA** TCEs have distinct expression characteristics. Chimeric constructs comprise the strong **plastid** operon.  $\sigma_{70}$ -type promoter (Prn-114) operably linked to the **downstream box** TCEs from the 5'-UTRs of mRNAs encoding tobacco **atpB**, **clpP**, **rbcl**, **psbB**, **psbA**, and phage T7 gene 10 products. These 5' regulatory segments facilitate high level expression of transgenes introduced into the plastids of higher plants. High levels of expression in transplastomic lines are obsd. for various reporter systems including (1) neomycin phosphotransferase II, (2) the bar gene encoding phosphinothricin acetyltransferase from *Streptomyces hygroscopicus* and synthetic bar genes, (3) and fusion constructs of the **aadA** coding region linked to the green fluorescent protein **gfp** gene.

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> s (plastid or chloroplast) and flare?

L3 5 (PLASTID OR CHLOROPLAST) AND FLARE?

=> duplicate remove 13

DUPLICATE PREFERENCE IS 'BIOSIS, CAPLUS, CABA'

KEEP DUPLICATES FROM MORE THAN ONE FILE? Y/(N):n

PROCESSING COMPLETED FOR L3

L4 3 DUPLICATE REMOVE L3 (2 DUPLICATES REMOVED)

=> d ti 1-3

L4 ANSWER 1 OF 3 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

TI Epithelial and initial cell fine structure in species of *Lithothamnion*

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and Phymatolithon (Corallinales, Rhodophyta).

L4 ANSWER 2 OF 3 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1  
TI Fluorescent antibiotic resistance marker for tracking plastid transformation in higher plants.

L4 ANSWER 3 OF 3 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.  
TI ULTRASTRUCTURE OF THE EARLY STAGES OF CARPOSPOROPHYTE DEVELOPMENT IN THE RED ALGA CHONDRRIA-TENUISSIMA RHODOMELACEAE CERAMIALES.

=> d bib abs 2

L4 ANSWER 2 OF 3 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1  
AN 1999:461466 BIOSIS  
DN PREV199900461466  
TI Fluorescent antibiotic resistance marker for tracking plastid transformation in higher plants.  
AU Khan, Muhammad Sarwar; Maliga, Pal (1)  
CS (1) Waksman Institute, Rutgers, The State University of New Jersey, 190 Frelinghuysen Rd., Piscataway, NJ, 08854-8020 USA  
SO Nature Biotechnology, (Sept., 1999) Vol. 17, No. 9, pp. 910-915. ISSN: 1087-0156.

DT Article

LA English

SL English

AB Plastid transformation in higher plants is accomplished through a gradual process, during which all the 300-10,000 plastid genome copies are uniformly altered. Antibiotic resistance genes incorporated in the plastid genome facilitate maintenance of transplastomes during this process. Given the high number of plastid genome copies in a cell, transformation unavoidably yields chimeric tissues, which requires the identification of transplastomic cells in order to regenerate plants. In the chimeric tissue, however, antibiotic resistance is not cell autonomous: transplastomic and wild-type sectors both have a resistant phenotype because of phenotypic masking by the transgenic cells. We report a system of marker genes for plastid transformation, termed FLARE-S, which is obtained by translationally fusing aminoglycoside 3"-adenyltransferase with the Aequorea victoria green fluorescent protein. 3"-adenyltransferase (FLARE-S) confers resistance to both spectinomycin and streptomycin. The utility of FLARE-S is shown by tracking segregation of individual transformed and wild-type plastids in tobacco and rice plants after bombardment with FLARE-S vector DNA and selection for spectinomycin and streptomycin resistance, respectively. This method facilitates the extension of plastid transformation to nongreen plastids in embryogenic cells of cereal crops.

=> d bib abs 3

L4 ANSWER 3 OF 3 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.  
AN 1986:198746 BIOSIS  
DN BA81:90046  
TI ULTRASTRUCTURE OF THE EARLY STAGES OF CARPOSPOROPHYTE DEVELOPMENT IN THE RED ALGA CHONDRRIA-TENUISSIMA RHODOMELACEAE CERAMIALES.

AU TSEKOS I; SCHNEPP E

CS BOTANICAL INST., UNIV. THESSALONIKI, THESSALONIKI 54006, GREECE.

SO PLANT SYST EVOL, (1985 (RECD 1986)) 151 (1-2), 1-18.

CODEN: ESPFBP. ISSN: 0378-2697.

FS BA; OLD

LA English

AB The ultrastructure of the early stages of carposporophyte development in the marine red alga Chondria tenuissima has been studied. The diploid carposporophyte grows on the gametophyte. Apical gonimoblast cells develop into diploid carpospores. The basal gonimoblast cells cease to divide and undergo considerable cytoplasmic changes before they become incorporated into the expanding fusion cell. Nucleus and plastids degenerate gradually, while mitochondria remain intact. The smooth endoplasmic reticulum becomes prominent, it seems to produce small vesicles with electron dense contents. Simultaneously, numerous mucilage sacs are formed, presumably from dilating ER cisternae. The contents of the mucilage sacs are secreted by exocytosis. The pit connections between gonimoblast cells flare out. They remain as isolated bodies without connection to a wall after fusion. Secondary pit connections occur between vegetative gametophyte cells and sterile carposporophyte cells. There are three different morphological types of pit connections.

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